

Work Order ID 94616***94616***

Page 1

December-19-12 1:13:05 PM

Item ID: D3021-041

Accept

N900040100

Setup

Start

NS1

Revision ID:

Stop

NS2

Item Name: Tube Assembly

Start Date: 12/19/12 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 1/11/13 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals:	Process Plan:	<i>W</i>	Date: <i>13-01-2</i>	Tooling:	Date:	Run	Start	*NR1*
QC:			Date: _____	SPC (Y/N):	Date: _____	Stop		*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3021	B								
100		0.00							
100	Large Fab								
Large Fab	Memo	0.00							
Large Fab	1-Cut tube as per Dwg D3021								
	2-Drill tube as per Dwg D3021 using DT8622								
	3-Deburr								
	4-Weld as per Dwg D3021 QSI004 A/R 4130 Rod Batch: <i>M 118875</i>								
110	QC9- Inspect visual per QSI004- Fusion Welds	0.00							
110	Memo	0.00							
QC									
Quality Control									

DAS
18
8-88

1 *0* *13-01-09*

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: Date:

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION			AGAINST DEPARTMENT/PROCESS						
			Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/>	Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/>	Water Jet <input type="checkbox"/> Prod. Eng. Coor. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/>	Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/>					
Part No. _____												
NCR No. _____												
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector			
Doc/Data												
Equip/Tooling												
Operator												
Material												
Setup												
Other												
Process												
Supplier												
Training												
Unapproved												
FAULT CATEGORY												
Landing Gear				General								
Bending				Bend				Grain				
Centre Not Concentric to O/S				BOM/Route				Hardware				
Cracks				Broken/Damaged				Inspection Incomplete				
Crushed/Crimped.				Burrs				Instructions Incomplete/Unclear				
Cuffs				Contamination				Maintenance				
Heat Treat				Countersink				Mislabeled				
Inspection Strip in Tube				Cut Too Short				Misread				
Ripples in Bend				Drill Holes				Offset				
Torque Waves in Extrusion				Drawing				Out of Calibration				
Turning Sequence				Finish				Out of Sequence				
Wave/Twist in Tube				Folio				Outside Dimensions				
										Ovalized		
										Over/Under tolerance		
										Part Incorrect		
										Part Lost/Missing		
										Part Moved		
										Positioned Wrong		
										Power Loss/Surge		
										Other		

Work Order ID 94616

December-19-12 1:13:05 PM

94616

Page 2

Item ID: D3021-041

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Tube Assembly

Stop

NS2

Start Date: 12/19/12 Start Qty: 1.00

1

Cust Item ID:

Required Date: 1/11/13 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00							
130 *130* Powdercoat Powder Coating	Grey Sandtex(Ref:4.3.5.6) per QSI005 4.3 122966. Memo START TIME: 11:45 OVEN TEMPERATURE: 320° FINISH TIME: 12:15	0.00							
140 *140* QC Quality Control	QC3- Inspect Part Finish Memo	0.00							

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION		AGAINST DEPARTMENT/PROCESS										
Part No. _____	Rework <input type="checkbox"/>	Scrap <input type="checkbox"/>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>									
NCR No. _____	Use-as-is <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coor. <input type="checkbox"/>	Quality <input type="checkbox"/>	Quality <input type="checkbox"/>									
	Work Order Update <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Other <input type="checkbox"/>									
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector						
Doc/Data															
Equip/Tooling															
Operator															
Material															
Setup															
Other															
Process															
Supplier															
Training															
Unapproved															
FAULT CATEGORY															
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube				General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions						<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Other				<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled	

Work Order ID 94616

December-19-12 1:13:05 PM

94616

Page 3

Item ID: D3021-041

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Tube Assembly

Stop

NS2

Start Date: 12/19/12 **Start Qty:** 1.00 ***1***

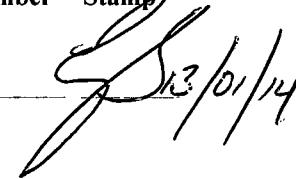
Cust Item ID:

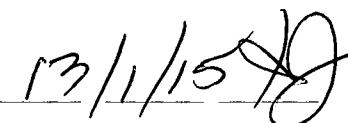
Required Date: 1/11/13 **Req'd Qty:** 1.00 ***1***

Customer:

Reference:

Approvals:	Process Plan: _____	Date: _____	Tooling: _____	Date: _____	Run	Start	*NR1*
	QC: _____	Date: _____	SPC (Y/N): _____	Date: _____	Stop		*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 *150* Packaging Packaging	Identify as per dwg & Stock Location: <u>G-A</u>	0.00				/X			

160 *160* QC Quality Control	QC21- Final Inspection - Work Order Release	0.00	
	Memo	0.00	

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____			DISPOSITION			AGAINST DEPARTMENT/PROCESS					
			Rework Scrap Use-as-is Work Order Update	Skid-tube Machining Thermoforming Large Fab	Crosstube Small Fab Finishing Composite	Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier	Engineering Quality Other				
Part No. _____											
NCR No. _____											
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											
FAULT CATEGORY											
Landing Gear				General							
Bending	General			Bend	Grain	Ovalized	Pressure/Forced				
Centre Not Concentric to O/S				BOM/Route	Hardware	Over/Under tolerance	Temperature/Cure				
Cracks				Broken/Damaged	Inspection Incomplete	Part Incorrect	Weld				
Crushed/Crimped.				Burrs	Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled				
Cuffs				Contamination	Maintenance	Part Moved					
Heat Treat				Countersink	Mislabeled	Positioned Wrong					
Inspection Strip in Tube				Cut Too Short	Misread	Power Loss/Surge					
Ripples in Bend				Drill Holes	Offset						
Torque Waves in Extrusion				Drawing	Out of Calibration						
Turning Sequence				Finish	Out of Sequence						
Wave/Twist in Tube				Folio	Outside Dimensions						

Picklist Print

December-19-12 1:13:05 PM

Page 1

Work Order ID: 94616

Parent Item: D3021-041

Parent Item Name: Tube Assembly

Start Date: 12/19/12

Required Date: 1/11/13

Comments: IPP 01.10.23 New Issue SM
DD VERF:JLM

IPP REV:B 12.06.26 DWG PB2

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

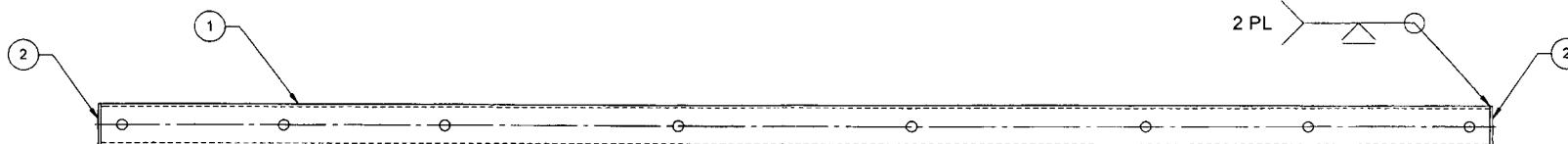
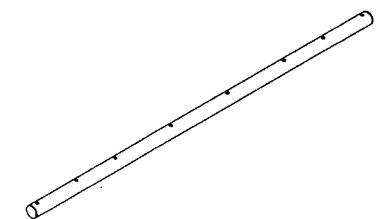
DQA: Date:

QA Closed: _____ Date: _____

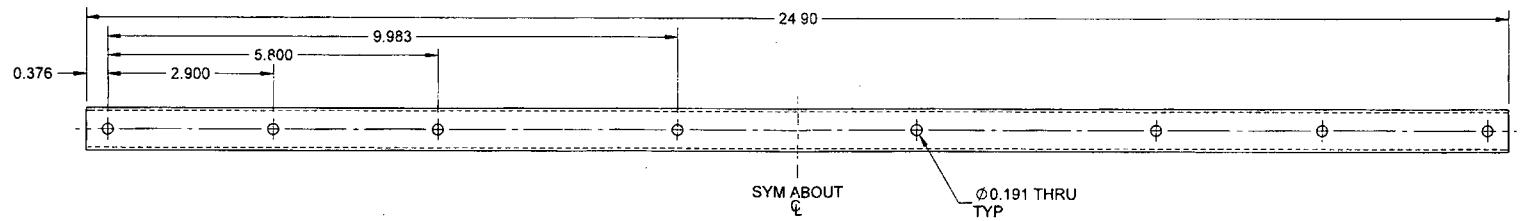
Work Order: _____			DISPOSITION			AGAINST DEPARTMENT/PROCESS					
			Rework Scrap Use-as-is Work Order Update	Skid-tube Machining Thermoforming Large Fab	Crosstube Small Fab Finishing Composite	Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier	Engineering Quality Other				
Part No. _____											
NCR No. _____											
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											
FAULT CATEGORY											
Landing Gear				General							
Bending	General			Bend	General			Ovalized	Pressure/Forced		
Centre Not Concentric to O/S				BOM/Route				Over/Under tolerance	Temperature/Cure		
Cracks				Broken/Damaged				Part Incorrect	Weld		
Crushed/Crimped.				Burrs				Part Lost/Missing	Wrong Stock Pulled		
Cuffs				Contamination				Part Moved			
Heat Treat				Countersink				Positioned Wrong			
Inspection Strip in Tube				Cut Too Short				Power Loss/Surge			
Ripples in Bend				Drill Holes							
Torque Waves in Extrusion				Drawing							
Turning Sequence				Finish							
Wave/Twist in Tube				Folio							
				Grain							
				Hardware							
				Inspection Incomplete							
				Instructions Incomplete/Unclear							
				Maintenance							
				Mislabeled							
				Misread							
				Offset							
				Out of Calibration							
				Out of Sequence							
				Outside Dimensions							

ITEM	QTY 041	P/N	DESCRIPTION
	X	D3021-041	TUBE ASSEMBLY
1	1	D3021-1	TUBE
2	2	D3017-11	END CAP

9H614
013-01-2



D3021-041 TUBE ASSEMBLY



D3021-1 TUBE

NOTES:

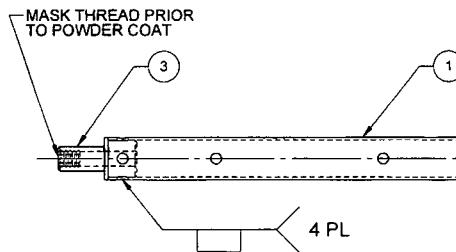
- 1) MATERIAL -041: N/A
 - 1: AISI 4130N SEAMLESS STEEL TUBING, Ø 0.750 X 0.049 WALL PER MIL-T-6736 OR AMS 6371/6360/6361/6362/6373/6374 REF M4130NT0.750W.049
- 2) FINISH: POWDER COAT GREY SANTEX (4.3.5.6) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3021-041" AND B/N "BXXXXX" PER DART QSI 044 6.1 (FINE POINT MARKER)
- 7) WEIGHT: 0.77 lbs

RELEASED
2012-07-09
4 PER ECR 12-616

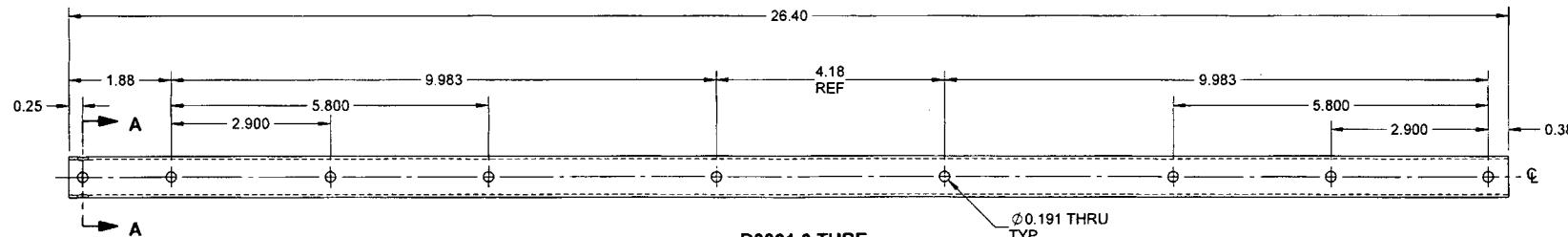
B	REFORMAT, ADDED -043 & -3	AJS	12.06.12
A	NEW ISSUE	CP	01.05.18
REV.	DESCRIPTION		
DESIGN	CP	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	TP	DRAWING NO.	REV. B
MFG. APPR.	TP	D3021	SHEET 1 OF 2
APPROVED	TP	TITLE	SCALE
DE APPR.	TP	TUBE ASSEMBLY	NTS
DATE	12.06.12	COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

ITEM	043 QTY	P/N	DESCRIPTION
	X	D3021-043	TUBE ASSEMBLY
1	1	D3021-3	TUBE
2	1	D3017-11	END CAP
3	1	D4667-041	ARMREST STUD ASSY

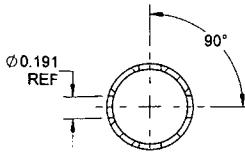
QH0016



D3021-043 TUBE ASSEMBLY



D3021-3 TUBE



SECTION A-A
SCALE 1:2
RELEASED
2012-07-03

NOTES:

- 1) MATERIAL -043: N/A
 - 3: AISI 4130N SEAMLESS STEEL TUBING, $\phi 0.750 \times 0.049$ WALL PER MIL-T-6736 OR AMS 6371/6360/6361/6362/6373/6374 REF M4130NT0.750W.049
- 2) FINISH: POWDER COAT GREY SANTEX (4.3.5.6) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3021-043" AND B/N "BXXXXX" PER DART QSI 044 6.1 (FINE POINT MARKER)
- 7) WEIGHT: 0.88 lbs

DESIGN	AJS	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D3021	SHEET 2 OF 2
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	TUBE ASSEMBLY	NTS
DATE	12.06.12	COPYRIGHT © 2012 BY DART AEROSPACE LTD. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	